

## CLAIMS

What is claimed is:

- 1           1.     A package, comprising:
- 2           a substrate with an inner surface to which a die is to be attached, forming
- 3           electrical connections through the substrate, between the die and the exterior of
- 4           the package;
- 5           a lid with an inner surface facing the inner surface of the substrate; and
- 6           sealant disposed between the substrate and the lid in a pattern with at
- 7           least one break in the pattern.

- 1           2.     The apparatus of claim 1, wherein the package is a ball grid array
- 2           package.

- 1           3.     The apparatus of claim 1, wherein the package is a pin grid array
- 2           package.

- 1           4.     The apparatus of claim 1, wherein the die is attached to the lid,
- 2           and the lid serves to conduct the heat away from the die.

- 1           5.     The apparatus of claim 1, wherein a vent-hole is formed through
- 2           the lid.

- 1           6.     The apparatus of claim 1, wherein the pattern in which the sealant
- 2           is disposed between the lid and the substrate is a substantially rectangular
- 3           pattern with the at least one break.

1 7. The apparatus of claim 6, wherein the rectangular pattern has four  
2 breaks, one in each side of the substantially rectangular pattern.

1 8. The apparatus of claim 7, wherein the four breaks comprise a  
2 minimum of 10% of the total length of what would otherwise be an unbroken  
3 substantially rectangular pattern.

1 9. The apparatus of claim 6, wherein the rectangular pattern has four  
2 breaks, one in each corner of the substantially rectangular pattern.

1 10. The apparatus of claim 9, wherein the four breaks comprise a  
2 minimum of 10% of the total length of what would otherwise be an unbroken  
3 substantially rectangular pattern.

1 11. The apparatus of claim 1, wherein the substrate is susceptible to  
2 absorbing moisture, and the pressure existing between the substrate and the lid  
3 is as a result of moisture being released within the package by the substrate and  
4 being converted to steam.

1 12. The apparatus of claim 11, wherein the substrate is comprised of  
2 organic material.

1 13. The package of claim 1, wherein the die is attached to the  
2 substrate using a controlled collapsed chip connection.

1           14.    The package of claim 1, wherein the package is tested by applying  
2   heat to the exterior of the package by way of exposing the package to steam at  
3   high pressure.

1           15.    A method of releasing pressure existing within a package,  
2   comprising:  
3           attaching a die to an inner surface of a substrate to form electrical  
4   contacts between the die and the substrate;  
5           disposing sealant about the inner surface of the substrate in a pattern  
6   having at least one break in what would otherwise be a pattern forming an  
7   unbroken line surrounding the die; and  
8           coupling a lid to the substrate, with an inner surface of the lid facing the  
9   inner surface of the substrate, using the sealant disposed about the inner surface  
10   of the substrate to bond the lid to the substrate.

1           16.    The method of claim 15, further comprising disposing thermal  
2   attach between the die and the inner surface of the lid to use the lid to conduct  
3   heat away from the die.

1           17.    The method of claim 15, further comprising modifying apparatus  
2   used to dispose the sealant in a pattern forming an unbroken line to dispose the  
3   sealant in the pattern having the at least one break in what would otherwise be  
4   a pattern forming an unbroken line.

1           18.    The method of claim 15, further comprising installing the package  
2   for testing in a manner that a vent-hole formed through the lid is blocked,

3 thereby preventing the pressure existing within the package from being  
4 released through the vent-hole.

1 19. The apparatus of claim 18, wherein the testing comprises applying  
2 heat to the exterior of the package by way of exposing the package to steam at  
3 high pressure.

1 20. The method of claim 15, wherein the substrate is susceptible to  
2 absorbing moisture, and the pressure existing between the substrate and the lid  
3 is as a result of moisture being released within the package by the substrate and  
4 being converted to steam.

1 21. The method of claim 15, further comprising installing the package  
2 for normal use in a manner that a vent-hole formed through the lid is blocked,  
3 thereby preventing the pressure existing within the package from being  
4 released through the vent-hole.

1 22. The method of claim 15, wherein the die is attached to the  
2 substrate using a controlled collapsed chip connection.

1 23. An electronic device, comprising:  
2 a substrate with an inner surface;  
3 a lid with an inner surface facing the inner surface of the substrate;  
4 a die on which electronic circuitry is disposed, enclosed between the  
5 substrate and the lid, and attached to the inner surface of the substrate which  
6 provides electrical connections between the die and the exterior of the package;  
7 and

8 sealant disposed between the substrate and the lid in a pattern with at  
9 least one break in the pattern.

1 24. The apparatus of claim 23, wherein the die is attached to the lid,  
2 and the lid serves to conduct the heat away from the die.

1 25. The apparatus of claim 23, wherein the pattern in which the  
2 sealant is disposed between the lid and the substrate is a substantially  
3 rectangular pattern with the at least one break.

1 26. The apparatus of claim 25, wherein the rectangular pattern has  
2 four breaks, one in each side of the substantially rectangular pattern.

1 27. The method of claim 23, wherein the die is attached to the  
2 substrate using a controlled collapsed chip connection.